D1. PURCHASING

D1.1 Introduction

A good purchasing program ensures that acceptable materials and animals enter the swine production facility. Just as processors specify certain quality standards for raw materials, swine producers need to specify what standards they want all incoming materials to meet.

The CQA® system offers producers the opportunity to demonstrate that they have implemented practices on their farm that control or minimize the risk of food safety hazards being introduced to the meat that will come from their animals. Question #2b of the On-Farm Quality Assessment Form indicates the program requirement that any farm wishing to be recognized by the CQA® program receives all incoming animals from CQA® registered source farms. This creates a CQA® continuum from birth to slaughter and ensures that producers are notified of animals with suspect broken needles or drug residues that must be appropriately handled. The CQA® program also encourages greater awareness of source farm herd health status and positive discussion between producers and members of related industries who supply Canadian hog farms with feed, medical supplies and other inputs.

The following headings will be used to identify the purchased inputs needed by most pig farms.

- Animals, Semen and Embryos
- Feedstuffs
- Medical Supplies
- Bedding
- Other Materials

D1.2 Animals, Semen and Embryos

D1.2.1 Biological Hazards

Most herd health and biosecurity programs developed by producers and their veterinarians focus on keeping swine diseases out. The same protocols used to reduce the risk of pneumonia caused by bacteria, such as *Mycoplasma* and *Actinobacillus* will also be effective in reducing the incidence of biological hazards which could be transmitted to pork.

- It is recommended that you limit replacement animal sources to those where you and your veterinarian know the health status is compatible with your herd. Research has shown the risk of introducing *Salmonella* increases in barns that gather pigs from many sources. Other microbes that pose a food safety risk such as *E. coli* and *Yersinia* may also be introduced through new stock. (On-Farm Quality Assessment Form question #2)
- Artificial insemination can be an alternative to introducing live animals. Be aware that semen may be contaminated with pathogenic bacteria. No known food pathogen is transmitted through semen from federally inspected facilities.
- Embryo transfer is another alternative to introducing live animals, though this is generally not used in commercial production. Embryos may be contaminated with pathogenic bacteria.
- Any bacterial contaminants that may be introduced to your farm through the introduction of new stock may be resistant to antibiotics. Be aware of this risk and be prepared to work with your veterinarian in the event that antibiotic treatment is not successful.
- It is highly recommended that cats, dogs, rodents and birds be kept out of the production unit. These animals can all act as vectors

for viruses and bacteria that may have a negative impact on your herd's health or that may be a food safety hazard. Cat feces, for example, could be responsible for introducing *Toxoplasma* to pork. (On-Farm Quality Assessment Form question #29)

- It is highly recommended that you establish guidelines for people who enter the production unit. Visitors and personnel may be unwittingly carrying pathogenic organisms that could be transmitted to the animals. Pigs exposed to human feces harbouring the tapeworm *Taenia solium,* for example, could develop cysticerci. (On-Farm Quality Assessment Form question # 26a)

D1.2.2 Chemical Hazards

Incoming animals may have chemical residues in their tissues that should not escape attention just because they have a new owner. The person receiving incoming pigs needs to know whether the person who shipped them administered medication to the animals that requires a withdrawal time. The conscientious seller needs to advise buyers that animals have been recently treated.

- An "Outgoing Pig Treatment Record", or a similar record indicating treatment history relating to any withdrawal times not yet cleared by the animals, must be received with all incoming animals. (Question #2d of the On-Farm Quality Assessment Form)
- Check what withdrawal periods are required for incoming stock. Make a record of these and ensure that animals are properly identified so that they or their excretions will not cause problems. Identification of animals may be done by individual, pen, room or lot.
- Even if you will not be shipping any animals prior to the end of the withdrawal time, you must make a record of the treatment.
- Consider how you would handle the disposal of an animal if your renderer will not accept animals with residues. It is recommended that you contact your provincial government or hog board for information on regulations and acceptable methods for carcass disposal.
- Remember that urine and feces from treated pigs may cause violative levels in untreated pigs. (On-Farm Quality Assessment Form questions #4, 11c, 20b, 20c, 24, 25d)
- Develop open lines of communication with your suppliers. Be aware of their treatment practices. (On-Farm Quality Assessment Form question #2)

D1.2.3 Physical Hazards

Incoming animals may have needle fragments or other bits of material embedded in them, which may cause a food safety hazard.

- An "Outgoing Pig Treatment Record" or similar record indicating any animals with confirmed or suspect broken needle fragments must be provided with incoming stock. (On-Farm Quality Assessment Form question #2d)
- Identify any incoming animals suspected of having a broken needle fragment in them. Make a record of this in your treatment record or other defined location so that you will be aware of this animal when it comes time to ship.
- Develop open lines of communication with your suppliers. Be aware of their barn operating practices. Do they use environmental enrichment devices that may introduce foreign materials into the pigs themselves? Steel belted tires, for example, may have been used as "toys". If the steel has been exposed, pieces may have broken off and become embedded in an animal.(On-Farm Quality Assessment Form question #2)

D1.2.4 General

- The source farms for all incoming live animals must be registered CQA® farms. (On-Farm Quality Assessment Form question #2b)
- All incoming animals must be identified well enough to prevent you from unwittingly sending an animal to slaughter with either chemical or physical hazard. (On-Farm Quality Assessment Form question #2e)

D1.3 Feedstuffs

D1.3.1 Biological Hazards

By feedstuffs, we mean whole grains, supplements, complete feeds, premixes and edible residual materials (ERM). Ideally, a purchasing program should specify how the product coming to the farm has been handled and stored. This is not always possible. Care should be taken to ensure trucks and equipment used to handle livestock and feed have been thoroughly cleaned. Care should also be taken to prevent contamination with droppings from birds, rodents or other animals that harbour harmful pathogens. Only approved meat and bone meal product should be used in swine feed.

Edible residual materials are waste products from the food processing industry, food service industry, grocery stores and wholesalers. Food waste containing meat or meat products may not be fed as ERM, due to the risk of disease. Product that may have come into contact with meat or meat products may not be fed. Waste from bakeries, dairies and food processing plants is allowed. Producers who wish to feed ERM must have a permit to do so. These permits are issued by the Canadian Food Inspection Agency (CFIA). Further information on how to obtain a permit can be obtained through your regional CFIA Veterinarian.

- Discuss with suppliers how they handle feedstuffs to prevent contamination with the feces of birds, rodents and other animals, and determine whether or not they have a quality control program in place. This type of program may have been developed in-house or may be HACCP or ISO certified. (On-Farm Quality Assessment Form question #6)
- Do not purchase feedstuffs from sources where you have any doubts about their storage and handling procedures. Poor storage or handling of feedstuffs may result in contamination by pathogenic organisms through cross-contamination or by the feces of birds and rodents. (On-Farm Quality Assessment Form question #6b)
- If considering feeding ERM, remember that the law requires a permit to do so. Information on these regulations and permits can be obtained from the Canadian Food Inspection Agency. (On-Farm Quality Assessment Form question #8)

D1.3.2 Chemical Hazards

When the growing, harvest or storage conditions favour mold growth, it is good policy to analyze incoming grain supplies for known mycotoxins. This is a precaution against impaired performance by animals rather than a food safety issue. The special care exercised by commercial feed mills should ensure processed feedstuffs contain minimal or no mycotoxins, as long as they are stored properly after processing.

- Where the possibility of mycotoxins in the feed exists, consider testing for their presence in incoming feedstuffs.
- Consult with a veterinarian or nutritional advisor for more details on handling of mycotoxins in feed.
- If possible, collect samples of incoming feed, in case they are needed for future analysis. A sample size of 1 kg, stored for a period of not less than 6 months, is recommended, if you decide to keep feed samples. (On-Farm Quality Assessment Form question #6c)

Trace minerals such as copper, iron, iodine, manganese, selenium and zinc are routinely added to balance swine diets. Occasionally, toxicity occurs, due to accidental overdosing. Non-essential minerals can also be found at low levels in incoming feeds. They include antimony, arsenic, cadmium, fluorine and lead. High levels usually signal that the ration has been accidentally contaminated.

Insecticides, fungicides and herbicides used in crop production can pose a risk, if improperly stored and handled. It is good practice to store these products away from feed processing or storage areas or any areas accessible by pigs. Care should be taken whenever the same equipment is used to handle both crop production products and swine feeds.

Chlorinated hydrocarbon insecticides such as toxaphene, chlordane, aldrin and lindane persist for long periods in the environment. They can concentrate in fat deposits and can be passed on to humans. Laws now restrict chlorinated hydrocarbon usage. Producers should require that incoming feed supplies are completely free of these agents.

- Where there is suspicion of toxic chemicals in incoming feeds, they should be analyzed. If toxic chemicals are detected: remove any affected feed from feeders; remove affected feed from bins; contact your veterinarian to discuss a course of action; contact your CQA® coordinator for assistance; contact your feed supplier to notify them of the test results. (On-Farm Quality Assessment Form questions #6, 7)
- Discuss with suppliers how they handle complete feed and feed ingredients to prevent contamination by pathogenic organisms, hazardous chemicals, medications and foreign materials. Determine whether they have a quality control program in place. This type of program may have been developed in-house or may be HACCP or ISO certification. (On-Farm Quality Assessment Form question #6)

Medicated complete feeds, medicated supplements and medicated premixes refer to products manufactured by feed manufacturers where a feed-grade medication is included. These products may be sold in bulk or bagged form. Premixes will contain the most concentrated amount of medication; complete feeds will have the lowest.

Both medicated complete feeds and medicated supplements contain premix. The difference in terminology describes how fully diluted with other feed components the premix is. Precautions to prevent contamination are necessary when handling any medicated product, but special care must be taken with more highly concentrated products.

When dealing with feed-grade medications, mixing errors or cross-contamination may result in the presence of medicated feed ingredients where there should be none. The wrong medication may be present or the correct medication may be present at an incorrect level. Any of these situations are considered to be chemical hazards.

- Discuss with suppliers how they handle complete feed and feed ingredients to prevent contamination by medicated feed ingredients and determine whether or not they have a quality control program in place. This type of program may have been developed in-house or may be HACCP or ISO certification. (On-Farm Quality Assessment Form question #6)
- If possible, collect samples of incoming feed in case they are needed for future analysis. A sample size of 1 kg, stored for a period of not less than 6 months, is recommended, if you decide to keep feed samples. (On-Farm Quality Assessment Form question #6c)
- Purchase medicated feeds, supplements and premixes as feed-grade medication from a reputable manufacturer. (On-Farm Quality Assessment Form question #6)
- Purchase bagged feed, supplements and premixes in original unopened bags that are

tagged. Save the tags for your reference and for a record of lot information if there are any problems with the product. (On-Farm Quality Assessment Form questions #6, 11)
- Be aware of the concentration of drug that exists in medicated feeds, supplements and premixes. It is highly recommended that you check the tags to ensure that the levels of medication reported in the product you received are what you requested and expected. (On-Farm Quality Assessment Form question #11)

D1.3.3 Physical Hazards

Producer concern about foreign objects in feed has prompted them to install screens and magnets to prevent damage to feed preparation equipment. The foreign objects originate during routine harvest and transport. Scalping equipment installed in mills shows that the foreign objects can be made of metal, plastic or wood. Swine are quite fastidious in their feeding habits, so the chances of them picking up a foreign object that will eventually reach the consumer are remote. Occasionally, however, bits of wire or discarded needles may be found embedded in tongues.

- Producers should discuss with suppliers how they handle feedstuffs to prevent contamination of feed and feed ingredients by physical hazards and determine whether or not they have a quality control program in place. This type of program may have been developed in-house or may be HACCP or ISO certification. (On-Farm Quality Assessment Form question #6)
- When purchasing feedstuffs, especially grain, producers should consider passing it over a magnet or through a screen to remove possible foreign objects.

D1.4 Medical Supplies

D1.4.1 General

- When transporting medications, ensure that they are protected from temperature extremes, according to label directions. For example, if a product requires refrigeration, consider bringing along a cooler on hot days to protect it from high temperatures. Protect all products from freezing.

D1.4.2 Biological Hazards

Biological hazards are minimized when all syringes, needles and surgical equipment enter the production facility intact and in original containers. Antibacterial drugs, vaccines and other medications run little risk of contamination when received in their original, unopened containers.

- Inspect all incoming materials to ensure that they are received in their original, unbroken containers. (On-Farm Quality Assessment Form question # 26c)
- Consider how you will handle any equipment that arrives in damaged or open packaging. Will you return it to the seller? Will you accept it and ensure that it is thoroughly cleaned and disinfected prior to use? (On-Farm Quality Assessment Form question #26c)
- Buy medical supplies and medications produced by a reputable manufacturer and sold by a licensed dealer.

D1.4.3 Chemical Hazards

Chemical and medication use is common in swine production. The list includes things like antibacterial drugs, vaccines, anthelmintics, vitamins, minerals and pesticides. Purchase of these products does not ordinarily cause a concern, because manufacturing methods are well monitored.

- Buy medical supplies and medications produced by a reputable manufacturer and sold by a licensed dealer.
- Medical supplies and medications should be handled, stored and sold by a reputable retailer.
- Medical supplies and medications should arrive at the production unit in unopened/unbroken containers.
- There ***must*** be appropriate labelling on the product to identify it, its strength or concentration, suitable dosage instructions and source manufacturer.

D1.5 Bedding

D1.5.1 Biological Hazards

Materials such as straw, sawdust and wood shavings are frequently used as bedding in production units and in transport vehicles. Pigs will chew and consume bedding, especially straw. Whether or not it contains pathogenic bacteria and parasites depends on how the bedding has been handled and stored. It is important to prevent bedding from becoming contaminated with animal or bird feces. Straw, sawdust and wood shavings are frequently used when transporting swine. Every effort should be made to ensure that they have not become contaminated during storage and handling.

- You must consult straw and bedding suppliers to ensure the materials were produced and stored in an acceptable manner, in order to minimize the risk of contamination by animal feces, molds, fungi and other pathogenic organisms. (On-Farm Quality Assessment Form question #9a)

D1.5.2 Chemical Hazards

Wood shavings, when used as bedding, must be scrutinized for pentachlorophenol (PCP) and chromated copper arsenate, wood preservatives, which, if consumed by pigs, can accumulate in tissues and be passed along to people. Lumber that has been treated with PCP must be kept out of places where the pigs could chew on it.

In general, the incoming requirements for bedding are the same as for grains and other feedstuffs.

- You must consult with suppliers of wood product bedding about the possible presence of PCP or other wood preservatives in the material. You should make a note of the date you contacted the supplier and the name of the person with whom you spoke. Ask if they would supply a letter for your records stating that their product is free of wood preservative chemicals. (On-Farm Quality Assessment Form question #9b)

D1.6 Other Materials

D1.6.1 Tattoo Equipment and Other Identification Devices

D1.6.1.1 Biological Hazards

As with other incoming equipment, there is minimal risk of biological contamination of tattoo equipment, unless its packaging is damaged upon receipt.

- Inspect incoming tattoo equipment, to ensure that it is received in an acceptable sanitary condition.
- Consider how you will handle any equipment that arrives in damaged or open packaging. Will you return it to the seller? Will you accept it and ensure that it is thoroughly cleaned and disinfected prior to use?
- Buy supplies produced by a reputable manufacturer.

D1.6.1.2 Chemical Hazards

Tattoo ink may introduce a chemical hazard, if it arrives mislabelled or if the wrong product is provided.

- Inspect ink prior to use to ensure that it is the same product that you routinely use. Any differences in the appearance of the product should be reported.
- Ensure that the ink you are using is approved for use in livestock.
- Buy supplies produced by a reputable manufacturer.

D1.6.2 Farm Chemicals

D1.6.2.1 Chemical Hazards

In most situations, herbicides, insecticides, fertilizers and other farm chemicals will not come into the pig production unit. Free-ranging pigs could conceivably gain access to improperly stored product, and mix-ups in the handling and storage of bulk products are possible, if proper care is not exercised.

- Ensure that farm chemical products are properly labelled upon receipt. Store these products away from medications, production tools and feed and feed ingredients. (On-Farm Quality Assessment Form question #5b)
- Store chemical according to any applicable provincial regulations.
- Buy supplies and medications produced by a reputable manufacturer.

D1.6.3 Environmental Enrichment Devices

D1.6.3.1 Physical Hazards

Environmental enrichment devices are basically "pig toys". Ropes, chains, tires and other items may be introduced to a pen to provide an outlet for pig curiosity. These products may prevent vices such as tail-biting and belly-nosing. However, these products may also introduce physical hazards to the production facility.

- Inspect environmental enrichment devices for any small pieces that may break off and become embedded in the animals.
- Do not use steel-belted radial tires. The steel in these tires may become exposed, break off in small pieces, and become embedded in the animals.